

Direct connect SAS storage for HP BladeSystem

The benefits of network storage with the simplicity of DAS
HP StorageWorks solution brief

'Many of our customers will see great benefit in deploying SAS storage for a BladeSystem c-Class environment where circumstances do not demand the investment of a SAN, but need a shared storage approach. The user interface for this solution is extremely intuitive and the performance is very good. This is an ideal in-rack solution for ProLiant shops moving from DL servers. It provides the flexibility for in-rack storage consolidation and clustering without the complexity and expense of fibre channel for those customers who have limited scalability needs.'

Steve Lankard,
Director of Solution Architecture
Agilysys, Inc.

Low cost meets high performance and flexibility

Looking for more performance, control and flexibility for your storage at a low cost per gigabyte? HP redefines direct attached storage (DAS) for the HP BladeSystem environment with direct connect SAS storage. By directly connecting the HP BladeSystem to SAS storage devices, HP brings together the straightforward architecture of SAS connectivity with the flexibility and resource utilisation benefits of network disk and tape storage.

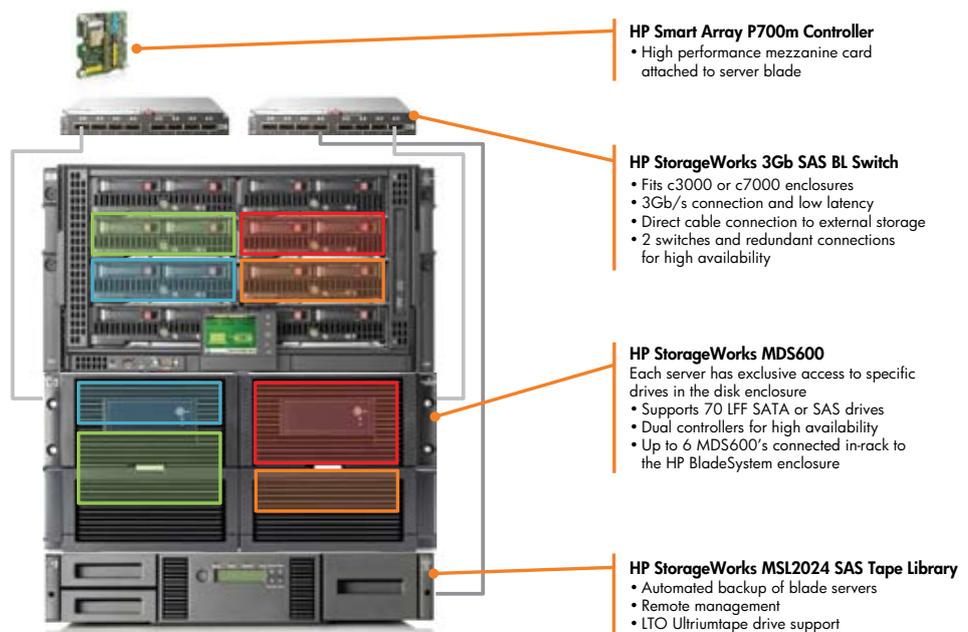
Now HP BladeSystem server administrators have the ability to easily provision shared or zoned capacity for their blade servers – without the need to co-ordinate storage requirements with SAN administrators.

Simple storage connectivity for your HP BladeSystem infrastructure

HP makes storage a snap, with a simple and affordable solution that will have you provisioning capacity and protecting your data minutes:

- Each HP blade server has an HP Smart Array P700m Controller installed in a mezzanine slot.
- Redundant HP StorageWorks 3Gb SAS BL Switches are installed in the interconnect bays of the HP BladeSystem enclosure.
- The switches are then connected through a SAS cable to external storage depending on your application needs. Choose from zoned or shared HP StorageWorks disk systems, as well as HP StorageWorks tape automation solutions.

Figure 1: Zoned SAS storage with the HP StorageWorks 600 Modular Disk System (MDS600).



When looking at solutions for increasing storage capacity requirements, the last thing server administrators want to do is sacrifice performance. Direct connect storage for HP BladeSystem gives you 3Gb/s of end-to-end connectivity, providing a low-latency in-rack storage environment that can be used for your most demanding applications. The shared infrastructure of an HP BladeSystem environment lets you easily expand in-rack storage capacity without complex re-wiring.

SAS connectivity also has cost advantages compared to traditional switched storage networks like Fibre Channel. With today's shrinking IT budgets, many businesses are freeing up resources by implementing tiered storage architectures where some data is accessed over SAS, while mission-critical or enterprise-class applications continue to utilise Fibre Channel.

Zoned SAS storage with the HP StorageWorks 600 Modular Disk System (MDS600)

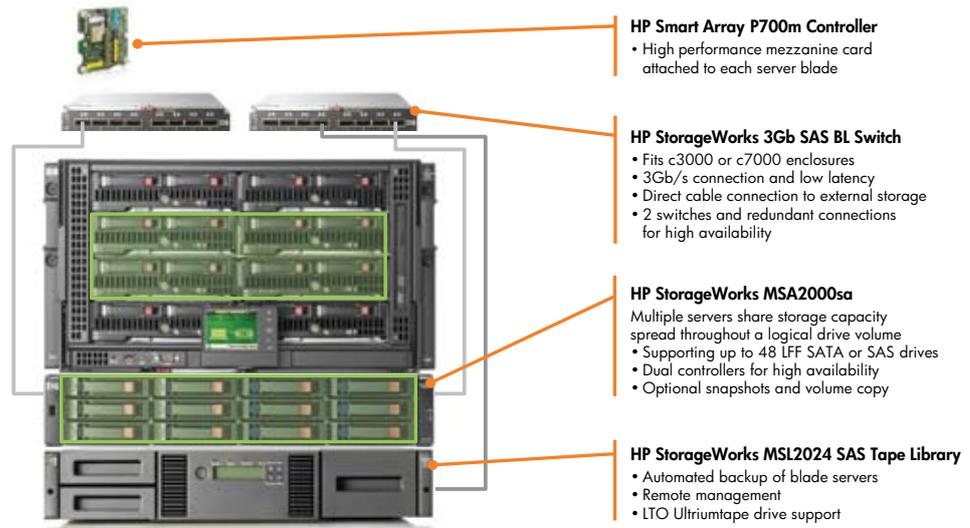
Traditionally, server administrators have added DAS enclosures to individual servers to add capacity. The MDS600 is an extremely dense storage enclosure designed to give blade servers similar access to dedicated drive capacity, and also goes beyond basic DAS – enabling servers to be deployed on the fly with no additional wiring required.

Groups of drives inside the MDS600 are assigned, or 'zoned', to individual blade servers for exclusive access, appearing as local storage to the server. This allows quick deployment of new servers and is perfect for applications such as Microsoft Exchange, which are designed to make the most of low cost DAS. This is also a good solution for large repositories of static content such as unstructured file data.

Specifications:

- Each MDS600 holds 70 large form factor SATA or SAS hard drives in just 5U of rack space
- Connect up to six MDS600 to a single enclosure for up to 420TB of storage

Figure 2: Shared SAS storage with the HP StorageWorks 2000 SAS Modular Smart Array (MSA2000sa).



Shared SAS storage with the HP StorageWorks 2000 SAS Modular Smart Array (MSA2000sa)

Some applications such as application clusters or virtualisation deployments require shared storage where multiple physical servers get access to the same logical drive volume. In many cases this shared approach enables high availability so that if one physical server fails another can take over the workload and still have access to all the data. The HP MSA2000sa is a SAS connected disk array, which can provide shared storage to blade servers.

Shared storage can help reduce cost and increase efficiency by eliminating local server drives and centralising boot images onto shared storage. The solution can also be used to support small server and desktop virtualisation environments.

Specifications:

- Scalable to 48 SAS or SATA drives per MSA2000sa using additional drive enclosures
- Connect multiple MSA2000sa to a pair of 3Gb BL SAS switches for up to 192TB of storage
- Snapshot and volume copy software options for enhanced data recovery

Protect your data with HP StorageWorks 1/8 G2 Autoloaders and MSL Tape Libraries

Provisioning capacity for your servers is only the first step. A solid data protection strategy is a critical component of your business planning. By automating the backup of your blade servers you enable low cost, long-term archiving and off-site disaster recovery. The 3GB BL SAS Switch can be used to connect to SAS tape automation solutions such as the HP StorageWorks 1/8 G2 SAS Tape Autoloader or MSL SAS Tape Libraries. These solutions support the latest Ultrium LTO-4 technologies for performance and capacity, as well as hardware encryption for added security.

HP StorageWorks and HP BladeSystem

HP BladeSystem is simply a smarter way to build an infrastructure to support the vital applications your business requires, but with fewer wires, lower electric bills, addressing the concerns you have today, and giving you the flexibility to grow in the future. HP StorageWorks solutions like direct connect SAS storage are an example of how joint server and storage engineering can result in lower cost solutions that are easier to deploy and manage, which ultimately will lead to better outcomes for your business.

Contact your HP sales representative. They will meet with you to analyse your needs and propose a configuration solution that makes sense for your unique needs.

Find out more about direct connect storage for HP BladeSystem

The HP Smart Array P700m Controller provides 3Gb/s SAS throughput, with the familiar HP Smart Array management environment for a consistent HP ProLiant experience.

<http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/index.html>

Redundant HP StorageWorks 3Gb BL SAS Switches installed in the interconnect bays of HP BladeSystem c3000 or c7000 enclosures have a dual domain architecture, ensuring a high availability configuration.

http://h18006.www1.hp.com/products/storageworks/3gbsas_switch/index.html

Connect directly to HP StorageWorks MSA2000sa storage arrays for flexible, high availability shared storage capabilities.

www.hp.com/go/msa2000sa

Connect directly to HP StorageWorks MDS600 storage enclosures for flexible and capacity dense zoned storage.

www.hp.com/go/mds600

HP StorageWorks MSL Tape Libraries and 1/8 G2 Tape Autoloaders provide secure, flexible and manageable backup and recovery of data. Connect directly to the HP StorageWorks 3Gb SAS BL Switch to protect your shared storage environment.

www.hp.com/go/automation

Technology for better business outcomes

To learn more, visit www.hp.com/go/storageblades

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